AMENDMENT TO THE CLAIMS

This listing claims will replace all prior versions, and listings of claims in this application:

Listing of claims

Claim 1 (Currently Amended): An apparatus for <u>down scaling a plurality of input frames to output</u> outputting a plurality of output frames according to a plurality of corresponding input frames, comprising:

    a selector for selecting a plurality of first sampling positions for a first input frame and a plurality of second sampling positions for a second input frame, wherein said first sampling positions and said second sampling positions are not substantially the same; and

    a decision unit for outputting a first output frame through sampling <u>regularly skipping at least one of pixels of</u> said first input frame according to said first sampling positions and outputting a second output frame through sampling <u>regularly skipping at least one of pixels of</u> said second input frame according to said second sampling positions.

Claim 2 (Original): The apparatus of claim 1, further comprising:

    a data buffer for receiving the output of the decision unit, and outputting said output frame.

Claims 3-6 (Canceled)

Claim 7 (Withdrawn): The apparatus of claim 1, wherein each of said first and second sampling positions is chosen according to an offset value respectively, wherein said offset value of said first sampling positions is 1/4, and said offset value of said second sampling positions is 3/4.

Claim 8 (Original): The apparatus of claim 1, wherein each input frame comprises a plurality of horizontal lines, and each horizontal line comprises a plurality of pixels, wherein said selector further comprises:

a horizontal pixel selector for selecting a plurality of first sampling pixel positions of each horizontal line of the first input frame and a plurality of second sampling pixel positions of each horizontal line of the second input frame; and

a horizontal line selector for selecting a plurality of first sampling horizontal line positions of the first input frame and a plurality of second sampling horizontal line positions of the second input frame.

Claims 9-10 (Canceled)

Claim 11 (Original): The apparatus of claim 1, wherein said selector includes a flip-flop.

Claim 12 (Currently Amended): A method for ~~sampling~~ down scaling an input image and outputting an output image, said input image comprising a plurality of image frames, each image frame comprising a plurality of pixels, said method comprising steps of:

selecting a plurality of first sampling positions for a first input frame and a plurality of second sampling positions for a second input frame, wherein said first sampling positions and said second sampling positions are not substantially the same; and

outputting a first output frame through ~~sampling~~ regularly skipping at least one of pixels of said first input frame according to said first sampling positions and outputting a second output frame through ~~sampling~~ regularly skipping at least one of pixels of said second input frame according to said second sampling positions.

Claim 13 (Original): The method of claim 12, wherein at least one of said first sampling positions is not included in said second sampling positions.

Claim 14 (Original): The method of claim 12, wherein the resolution of said first input frame and the resolution of said first output frame are different.

Claim 15 (Original): The method of claim 12, wherein said output image includes a first set of first output frames generated through sampling the first input frames according to said first sampling positions and a second set of second output frames generated through sampling the second input frames according to said second sampling positions.

Claim 16 (Withdrawn): The method of claim 12, wherein each of said first and second sampling positions is chosen according to an offset value respectively, wherein said offset value of said first sampling positions is 1/4, and said offset value of said second sampling positions is 3/4.

Claim 17 (Original): The method of claim 12, wherein each input frame comprises a plurality of horizontal lines, and each horizontal line comprises a plurality of pixels, wherein step of selecting comprises:

selecting a plurality of first sampling pixel positions of each horizontal line of the first input frame and a plurality of second sampling pixel positions of each horizontal line of the second input frame; and

selecting a plurality of first sampling horizontal line positions of the first input frame and a plurality of second sampling horizontal line positions of the second input frame.

Claim 18 (Previously Presented): The method of claim 17, wherein each of said first and second sampling pixel positions is chosen according to an offset value respectively, wherein said offset value of said first sampling pixel positions is 0, and said offset value of said second sampling pixel positions is equal to M/N-1,

wherein M is the number of horizontal pixels of said input frame, and N is the number of horizontal pixels of said output frame.

Claim 19 (Previously Presented): The method of claim 12, wherein each of said first and second sampling positions is chosen according to an offset value respectively.

Claims 20-21 (Canceled)

Claim 22 (New): An apparatus for down scaling a plurality of input frames to output a plurality of output frames, comprising:

a data buffer, for buffering the input frames and outputting the output frames according to a decision signal; and

a down-scaling control circuit, coupled to the data buffer, for generating the decision signal according to a scaling ratio parameter, the down-scaling control circuit comprising:

a selector for selecting a plurality of first sampling positions in a first input frame, a plurality of first skipping positions in the first input frame, a plurality of second sampling positions in a second input frame, and a plurality of second skipping positions in the second input frame according to the scaling ratio parameter; and outputting a selection signal; and

a control logic, for outputting the decision signal according to the selection signal;

wherein at least one of the second sampling positions in the second input frame is corresponding to one of the first skipping positions in the first input frame; and at least one of the first sampling positions in the first input frame is corresponding to one of the second skipping positions in the second input frame.

Claim 23 (New): The apparatus of claim 22, wherein the selector further comprises:

a horizontal pixel selector for selecting a plurality of first sampling pixel positions of each horizontal line of the first input frame and a plurality of second

sampling pixel positions of each horizontal line of the second input frame;
and

a horizontal line selector for selecting a plurality of first sampling horizontal line positions of the first input frame and a plurality of second sampling horizontal line positions of the second input frame.

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Claim 24 (New): The apparatus of claim 22, wherein the down-scaling control circuit further comprises:

an odd/even decision unit, for determining whether the input frames is an odd frame or an even frame according to a vertical synchronization signal.

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Claim 25 (New): The apparatus of claim 22, wherein the control logic is an AND gate.